

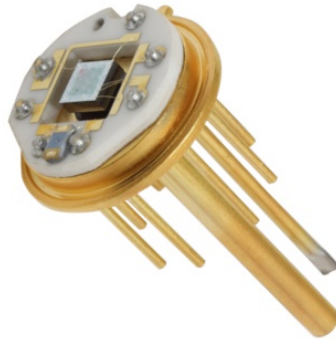
IPM10 SERIES - High Precision Modules

Absolute, gauge and differential silicon pressure sense modules



Disclaimer:

This is a preliminary datasheet. The listed parameters are meant to be the development guidance and might change with the final revision of this datasheet.



Key Features

- IPD10 High Precision Technology die
- World leading long-term stability
- Discrete PT1000 for temperature monitoring or compensation
- Lowest pressure and temperature hysteresis
- Fast response
- High impedance bridge
- Pressure proportional output signal

Applications

- Industrial controls
- Medical instrumentations
- High precision pressure measurements

Media

- Dry air
- Oil filled transmitters
- Non-corrosive gases
- Vacuum applications
- High static pressure

Technology

- Piezo resistive Wheatstone bridge utilized with glass or silicon backplate

Specification

Parameter	Range	Min.	Typ.	Max.	Unit
Electric and environmental					
Bridge resistance	All	5.8	6.3	6.8	kOhm
Supply voltage	All		5	12	V
Operating Temperature	All	-40		+125	°C
Storage Temperature	All	-50		+150	
Temperature coefficient^{a)}					
Offset	All	-0.05 ^{b)}	±0.01	+0.05 ^{b)}	%FSS/K
Output span	All	-0.23 ^{c)}	-0.20	-0.17 ^{c)}	
Bridge resistance	All	+0.07	+0.09	+0.11	%/K
Performance					
Offset	All	-25	0	+25	mV
Non linearity ^{d)}	All	-0.5	0.3	+0.5	%FSS
Pressure repeatability	All	-0.05	0.02	+0.05	
Temperature hysteresis ^{e)}	All	-0.1	0.05	+0.1	
Long-term stability	All			0.05	%FSS/year
Full scale output					
IPM10-LP-05D040M	40mbar	50	90	140	mV@5V
IPM10-LP-xxx100M	100mbar	60	100	140	
IPM10-MP-xxx400M	400mbar	60	100	140	
IPM10-MP-xxx001B	1bar	60	100	140	
IPM10-HP-xxx004B	4bar	60	100	140	
IPM10-HP-xxx010B	10bar	60	100	140	
IPM10-HP-xxx040B	40bar	60	100	140	
Customized	Cust.		Cust.		

a) 25°...85°C

b) -0.10...+0.10 %FSS/K for IPM10-LP-xxGxxxx and IPM10-MP-xxA/Gxxxx

c) -0.27...-0.13 %FSS/K for IPM10-LP-xxA/G100M

d) End point straight line, -1.2...+1.2 %FSS for IPM10-LP-xxA/G100M

e) 25°...125°...25°C,

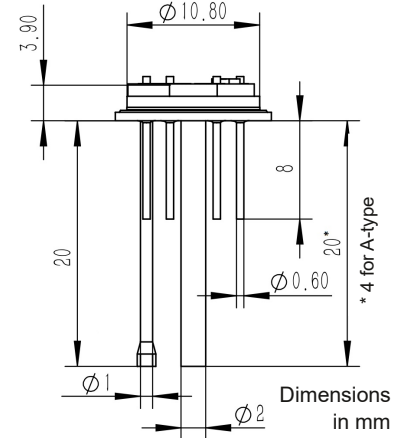
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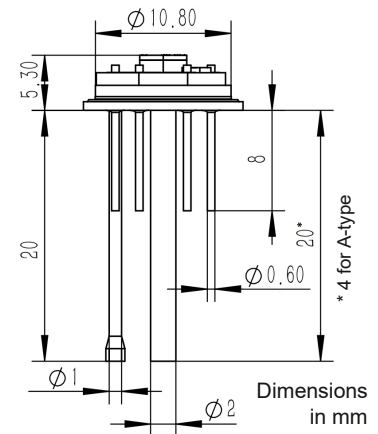


Layout and Size

IPM10-xP-0xA/G/D



IPM10-xP-20A/G

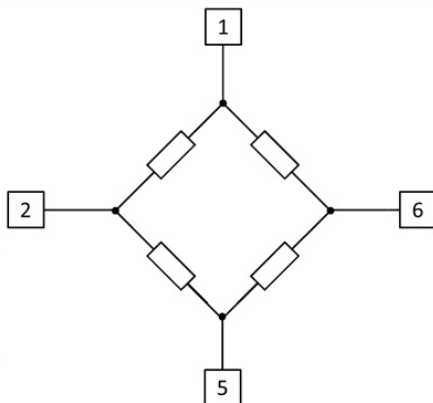
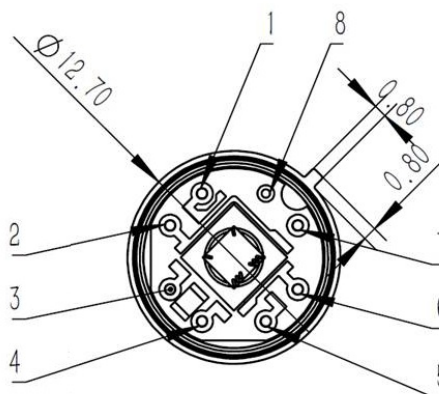


Parameter	Range	Min. from front side	Min. from rear side	Unit
Overload and burst pressure				
IPM10-LP-05D040M	40mbar	>3	>1.5	bar
IPM10-LP-xxx100M	100mbar	>5 ^{a)}	>2.5 ^{a)}	
IPM10-MP-xxx400M	400mbar	>12	>6	
IPM10-MP-xxx001B	1bar	>20	>10	
IPM10-HP-xxx004B	4bar	>40	>20	
IPM10-HP-xxx010B	10bar	>70	>50	
IPM10-HP-xxx040B	40bar	>120	>60	
Customized	Cust.	Cust.	Cust.	

a) 3bar from FS and 1bar from RS for IPM10-LP-20Gxxxx type

Electrical Connection

Bondpad	Signal
Output	
1	+Vsupply/substrate
2	+Vout
3	Temperature sensor
4	Temperature sensor
5	-Vsupply
6	-Vout
7	Not connected
8	Tube



$A = 3.9083 \times 10^{-3} \text{ } ^\circ\text{C}^{-1}$
 $B = -5.7750 \times 10^{-7} \text{ } ^\circ\text{C}^{-2}$
 $C = -4.1830 \times 10^{-12} \text{ } ^\circ\text{C}^{-4}$
 R measured resistance
 t calculated temperature
 R_0, A, B parameters according to DIN EN 60751

$$t = \frac{-R_0 A + [(R_0 A)^2 - 4 R_0 B (R_0 - R)]^{1/2}}{2 R_0 B}$$

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Ordering Code

Die Size			Backplate Option / Type		Range		Unit		
Series	Part Number		Pressure						
IPM10	LP	4.65x4.65mm	05D	0.5mm / Differential	040	M	mbar		
	MP	2.65x2.65mm	08A	0.8mm / Absolute	100				
	HP	2.05x2.05mm	08G	0.8mm / Gage	400				
			20G	2.0mm / Gage	001	B	bar		
					004				
					010				
					040				
Order Code Example									
IPM10	-	MP	2.65x2.65mm	-	05D	0.5mm / Differential	001	B	bar
IPM10-MP-05D001B									